

"SOME NEW CEYLON COCCIDÆ."

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Govt. Ent. of Ceylon.

Ripersia theæ, sp. nov.

Adult female, oval-cylindrical, about 2 mm. long, enclosed in a loose white test.

Derm thickly studded with small, circular gland-pores. Antenna of seven segments, the seventh segment much the longest and ending in a long seta; basal segment broader than long; segments 3, 4, 5 and 6 shortest and of much the same length; setæ on all segments. Legs well developed, very stout. Coxa stout, and twice as broad as long; femur stout usually not more than twice as long as broad; tibia but slightly longer than the tarsus and both stout; tarsal claw broad at base, sharply incurved at the apex; digitules present, tarsal simple, unguis apparently dilated at apex.

Anal ring with six long setæ; the setæ rise from a hyaline band bordered on each side by a row of gland-pores. Anal lobes indistinct; position indicated by a long seta; near the base of this seta a group of small, scattered, circular pores, two stout conical spines and several more slender spines. Similar groups of pores and spines (2 or 3 in a group) occur on the lateral margins of the segments in front of the anal segment. Stout conical spines and a few long slender spines and numerous small pores occur all over the body.

On branches of tea at Peradeniya, June 1913 and July 1914. All the insects in one colony were irregularly ruptured at one end and resembled somewhat small dipterous puparia from which the adult fly had escaped. A colony of what was probably the same species of insect, observed in June 1913, had been apparently completely exterminated by the caterpillars of *Spalgis epius*, a large number of the pupæ of this Lycænid, occurring on the bush.

This insect in the seven-segmented antennæ and in the general character of the legs resembles *Dactylopius theæcola*, Gr., described from roots of tea plants from India. It shows many points of difference however.

Coccus litzeæ, sp. nov.

Female insect flattish, dark-brown and covered with granular paletus of yellowish-white wax. There is a medium dorsal and two submarginal ridges; the medium ridge is connected with the submarginal ridges by two transverse ridges and numerous ridges run from the submarginal ridges to the margin. The shape is roughly circular, the anterior end sometimes being slightly acuminate. Length about 3 mm. It resembles somewhat *L. piperis*, Gr., but is much darker in colour and eyes are not visible.

Male scale occurring along with female, scarce; composed of 18 plates. In slide preparations the positions of the ridges stand out as translucent areas; the mid-dorsal clear area does not reach to the anal plates. Oval translucent areas occur in groups, especially on the marginal and submarginal areas and cephalad of the anal plates. There is a particularly prominent group towards the inner margin of each of the chitinised areas lying between the clear areas corresponding to the ridges; it lies just lateral of the position of the submarginal ridge.

*We regret to announce that Mr. Rutherford has died since writing this paper—Eds.

Body covered with small pores (? wax-tubes).

Eyes are prominent and lie just lateral of the base of the antennæ. Antennæ with six segments, the third very long and sometimes showing traces of subdivision; legs slender; tibia plus tarsus long, longer than femur, tarsus as long as tibia. Claw sharp, tarsal and unguis hairs present. Femur comparatively stout, relatively broader than in Green's figure of *L. piperis*, Gr. Anal plates as in *L. piperis*, but broader in comparison with their length. They are broadest in their caudal half.

Stigmatic spines thin, one longest, taper slowly to apex and are sometimes slightly constricted at the base; they are set in a deep notch expanded inwardly as in *L. piperis*, Gr. Marginal setæ simple, rather longer and stouter than in *L. piperis*, Gr.

Anal ring with eight setæ. Margin of space containing anal plates with a row of gland-like structures.

Body of parent contains young with well-developed mouth-setæ.

Larvæ purplish.

On stem and branches of *Litsea longifolia*, Peradeniya, 22nd August 1914.

This insect falls near *L. piperis*, Gr., from which however it has many points of difference.

Neolecanium pseudolea, n. sp.

Adult black or dark-brown, about 2.50 mm. long, longer than broad, acuminate, but usually not symmetrically so, towards the anterior end. Dorsum tubercled and with a thin coating of white wax; insect rather flat.

The insect resists prolonged boiling in 10 per cent. KOH so that few structures can be made out. The margin of the body and of the anal cleft is more heavily chitinised than the rest of the body. The derm is thickly studded with irregularly-shaped, translucent areas. The anal plates are longer than broad, the lateral margin a continuous curve. Marginal setæ are long, simple and stout and are set at fairly wide intervals; there are also shorter setæ. Stigmatic spines are set on margin, two or three, one larger than the others; sometimes of three lengths. Parastigmatic pores mesal of the stigmatic spines.

Larvæ with a distinct caudal notch, its lateral sides each with a comparatively large, crescentic, fairly conspicuous plate. Anus at base of plate. Two anal setæ to be made out. A long setæ at the apex of each plate and a long, stout, backwardly directed seta on the margin opposite each stigma.

What is probably another but younger form of the same insect occurs on the same tree. It is of the same shape. The dorsum sometimes possesses a median, longitudinal ridge with transverse ridges running out from this; the dorsum is covered with a thin, white bloom that is often however absent from the median region. Some are tabular.

The derm possesses numerous, conspicuous, circular or oval clear areas. There is a submarginal band of more or less circular plates of chitin each showing concentric layers. The marginal setæ are long, stout and simple. Stigmatic spines two or three, one longer than the others; the two shortest tapering and sharp at apex; parastigmatic pores as above.

Anal plates as above. Antennal segments rather indistinct, but seven or eight, probably eight segments, the fourth being very short; legs well developed; tibia but slightly longer than tarsus; tarsus showing traces of two lines of subdivision. Claw hooked at apex, sharp, broad at base. Length of mounted insect about 3 mm.

On branches of Cinnamon, Peradeniya, Ceylon, July 1914. This insect in microscopical characters resembles *S. obae* more than it does any insect with which the writer is acquainted. The appearance of the fresh insect, however, is quite different.

Aspidiotus (s. str.) panicæ, n. sp.

Scale of female pinkish-grey and slightly elongated, narrower at one end than at the other; exuviae golden-yellow, situated towards the broader end and partly covered by secretion. Ventral scale complete.

Adult female slightly longer than broad. Pygidium large, abdominal segments contracted drawing in the pygidium. Body hyaline except the pygidium which is somewhat chitinised especially at the apex.

Antenna consists of a tubercle, notched at apex and bearing a long curved seta near its base. No parastigmatic pores.

Three pairs of lobes. Median lobes largest each with a stout basal piece projecting well into the pygidium; placed close together the mesal sides diverging slightly towards the apex; apex rounded with a slight angle on the mesal side; lateral side with one or two conspicuous notches.

Second lobes with sides parallel towards the base, convergent towards apex with a lateral notch. Third lobes small, broader than long, sides of equal length, apex truncate and sometimes with a small apical point. Pygidium laterad of the third lobes coarsely lobate.

Pectina between median lobes, 1 or 2 between median and second lobes, 3 between second and third; all shortly pronged at the apex. A long, stout, straight seta laterad of the median lobes and projecting well beyond the lobes; shorter setæ laterad of second and third lobes and on the pygidia margin. Dorsal pores small. Anus considerably caudad of vagina, long and narrow.

Circumgenital pores (7 and 7) (5 and 6); body contains young with mouth-setæ well developed.

Under the leaf-sheaths of *Panicum incinatum*, Peradeniya, Ceylon, July 1914.

Parlatoria zeylanica, n. sp.

Adult insect slightly longer than broad and broadly rounded at the anterior end. Abdominal segments distinct. Pygidium slightly chitinised, its base showing a faint tessellation. Antenna consists of a small tubercle bearing a long seta. Between antennæ and cephalad of mouth-parts are some 5 or 6 tubercles, each bearing a seta at the apex. Pygidium with three pairs of lobes. Median lobes with sides parallel to near apex, then notched, the apex low and rounded; the lateral margin may have two notches. Second lobes similar but shorter. Third lobes broadly triangular and serrated at the apex.

Pectinæ 2 (between median lobes) 2, 3, and cephalad of the third lobe, three more. One of the fimbriations of the pectinæ is usually much longer than the rest. A long seta laterad of median lobes, and shorter ones on and laterad of each of the second and third lobes. Broad, parlatoria-like gland-pores, one between the first and second, and between the second and third lobes, and two laterad of the third lobes; each set in a deep notch and with edges strongly chitinised. No circumgenital pores.

Anus on a level with a line joining the anterior lateral extremities of the pygidium. Few dorsal pores; about eight or nine scattered over the pygidium, large. A few similar gland-pores on the lateral margins of the abdominal and thoracic segments and four on the middle region of the segment in front of the pygidium, two on each side.

Internal part of gland-tube very short, broader than long.

Associated with *Chionaspis simplex*, Gr., and *Aspidiotus secretus*, Gr., on a "small bamboo," Peradeniya, August 1914.

Parlatoria cinnamomi, n. sp.

Female scale golden-yellow; a black area just caudad of the first exuvium; some with a black area in the middle of the first exuvium; both exuviæ covered with a thin, white wax.

A male scale associated with the above insects had a black spot on the exuvium.

Adult female broader than long, pygidium somewhat retracted. Three pairs of lobes placed far apart. Median lobes have a deep notch on each side near the apex, which is narrow; sometimes there are two notches on the lateral side. Second lobe similar but may have several notches on the lateral margin; the apex too is more sharply pointed. Third lobe scarcely notched on the mesal side, with several notches on the lateral side and the apex pointed. Pectinæ broad, expanded distally; 2 between median lobe, 2 between median and second lobes and 3 between second and third lobes. Laterad of third lobe in order—a pectina, two-rounded projections, a long hyaline lobe with a seta laterad of it, and a series of lobe-like processes rounded at apex and extending on to the abdominal segment in front of the pygidium. A small triangular gland-pore projection midway between median lobes, between median and second lobes and laterad of the second pectina, between second and third lobes; several less distinct cephalad of 3rd lobes. Internal part of gland-tube very short. A seta at the base of each lobe on its lateral side, and one on the pygidial margin. Circumgenital pores anterior (6 and 7), posterior (4 and 3). A few anterior parastigmatic pores. Pygidium of second exuvium very similar to that of adult. There are several pectinæ laterad of the third lobes and the abdominal segments are without the rounded projections of the adult.

On upper surface of leaves of Cinnamon, Peradeniya, Ceylon.

I have observed the same insect on leaves of *Caryota urens* at Peradeniya. It falls near *P. aonidiiformis*, Gr., but differs in the much broader pectinæ and in the character of the processes on the margin of the pygidium as well as in the prominent, gland-pore projections.

Parlatoria zeylanica, sp. nov.

Female scale light-brown, composed entirely of the exuviæ. Second exuvium three times the length of the first, both covered with a whitish secretion. A pitchy black area just caudad of the first exuvium. Three pairs of lobes, median lobes longer than broad, triangular towards apex, irregularly indented. Second lobes often longer than broad or at least as long as broad, the lateral side slightly indented. Third lobe not always distinguishable from the lobe-like plates; when visible longer than broad with apex rounded. Two plates between the median lobes, two between median and second and two or more between the second and third. The plates extend well beyond the lobes, are often slightly expanded towards the apex, are roundly truncate at apex with a fine median projection, the whole resembling a partly burnt candle. Laterad of third lobes are about four or five short, usually stout, blunt, lobe-like plates. Marginal pores not visible. Circumgenital pores (6 and 7) (4 and 3). Anus slightly caudad of the caudo-lateral group of circumgenital pores. Anterior spiracles apparently without parastigmatic pores.

The pygidium of the second exuvium has three pairs of conspicuous lobes. The median lobes have faint mesal and lateral notches. The second and third lobes have each a laterad notch or the third may be without such a notch. There are two pectinæ between the median lobes, two between the median and second, three between the second and third, and a series of seven or eight laterad of the third lobes; the pectinæ are broad and

do not project beyond the lobes. There is a broad gland-pore between the median and second, and the second and third lobes, and two on the pygidium cephalad of the third lobes; the duct is short and broad, almost as broad as the incision.

On the under surface of leaves of Cinnamon, Peradeniya. This insect has a distinct resemblance to *P. atalantiæ*, Gr. The colouration of the scale however is different, the lobes are longer and the plates stouter. Lobes and plates are grouped more closely than in Green's figure of *P. atalantiæ*, and I have never seen the third lobe as there represented.

A very similar insect occurs on the leaves of *Vitis* sp. *Sterculia thwaitesii* and *Polyalthia* sp.

In insects from *Vitis* the lobes are more prominently notched and there are 3 or 4 plates between the second and third lobes. The lobes of the second exuvium are all notched on the mesal and lateral sides, the mesal notch usually being situated caudad of the lateral; a short band of yellow chitin, probably representing a fold, runs meso-cephalad on each side from the base of the pygidium which is somewhat retracted. The larva has two pairs of distinct lobes. The insects are attached by chalcids.

In insects from *Sterculia* the plates are not quite so long as in Cinnamon, and their shape is not constant, varying on the two sides of the one pygidium. There are sometimes four plates between the second and third lobes, one or more of them apparently devoid of the apical prolongation.

Insects from *Polyalthia* show three pectinæ between the second and third lobes.

If these insects are identical with *P. atalantiæ*, Gr., this insect is much more variable than Green has represented it.

Parlatoria, sp.

Female scale circular, Aspidiotus-like; exuviæ greenish yellow, the second less than twice the length of the first; axes of exuviæ not in a straight line often inclined to each other at a high angle; first exuvium with a distinct median ridge: secretion greyish-white.

Head and thoracic segments occupy the major part of the body; abdominal segments contracted pulling the pygidium somewhat into the body; anterior end broadly rounded; pygidium very slightly chitinised. Five pairs of lobes. Median lobes longer than broad, widening distally, each side with a prominent notch near the apex, apex rounded. Second lobes longer than broad, rounded at apex, distinctly notched on the lateral side, indistinctly so on the mesal side. Third lobe similar to second but smaller. Fourth lobe triangular, longer than broad, sharply pointed and serrated on the lateral side. Fifth lobe similar to fourth but smaller. Pectinæ two between median lobes, two between median and second lobes, three between second and third lobes, three between third and fourth, four between fourth and fifth and two laterad of fifth.

Segments in front of pygidium with stout, triangular, plate-like projections. Marginal pore between median lobes, one between median and second, one between second and third, two between third and fourth, the mesal being the smaller, three between fourth and fifth; all pores with broad chitinous rim. Internal gland tube more than twice as long as broad and of about the same width throughout. Five or six rows each of three or four dorsal pores extending a short distance cephalad of the margin of the pygidium on each side of the middle line. Anus longer than broad, caudad of a line joining the fifth lobes. Vagina near the base of the pygidium. A seta laterad of each lobe. A single circumgenital pore in the position of the cephalo-lateral group of one side. Body contains larvæ with well-developed mouth-setæ and two pairs of lobes. Anterior

spiracles with six parastigmatic pores in a row and widely separated, situated meso-cephalad of the opening. Antenna a rounded tubercle bearing a long curved seta.

On upper surface of leaves of *Diospyros ebenum*, Peradeniya, Ceylon, 27th August 1913. *Parlatoria pergandii*, var. *phyllanthi*, Gr., occurs on the same leaves along the side of the midrib. This insect falls near *P. pergandii*, Comst., but is distinguished by the much greater length of the gland-tubes as well as by the virtual absence of circumgenital pores. It is very near *P. mangiferae*, Morlatt; the fourth and fifth lobes are longer and narrower, the interval between the median lobes slightly greater, being wider than the breadth of the lobe. The number and arrangement of the parastigmatic pores too is somewhat different (those of *P. mangiferae* being from 8 to 10 in number and situated in a group on the inner side of the stigma).

Lepidosaphes vandæ, n. sp.

Female scale very dark-brown in colour, except the first exuvium which is paler. First exuvium with a mid-dorsal, longitudinal, rounded ridge. Second exuvium of same colour as the first but covered with secretion. Secretion transversely and coarsely ridged. Length of scale difficult to determine as they are usually curved and massed together under the leaf sheaths; about 2.50—2.75 m.m.

Male scale paler with a flat, white margin to the secretion. The exuvium usually provided with a covering of white wax which projects in front like two horns. Hinge narrow, whitish.

Adult female more than twice as long as broad, broadest in thoracic region, anterior end rounded and provided with small conical processes. Posterior abdominal segments not markedly produced laterally. Antenna an irregularly-shaped tubercle bearing 3 setæ. Anterior spiracles with a group of 11-14 pores; posterior without pores.

Two pairs of lobes. Median lobes broader than long, set rather close together, somewhat triangular, sides of triangle serrate, the extreme apex a small, rounded lobe; sometimes the apex is nearer to the mesal than to the lateral side, giving the lobe a resemblance to that of *Howardia biclavis*. Second lobe duplex; mesal half large, mesal side short, lateral side long, oblique and serrated; lateral half a minute tooth.

Laterad of second lobes the margin of the pygidium is serrated, especially in the region of the second part of pore openings.

Marginal pores prominent, oval, twice as long as broad.

Dorsal pores few, small and somewhat inconspicuous.

Four comparatively large, circular, translucent areas (dorsal pores) just cephalo-laterad of the second lobe.

Plates 2, 2, 1, 2, 2; plates between median lobes and between median and second lobes short and comparatively inconspicuous; that laterad of second lobes large.

Plates on lateral margin of abdominal segments long-dome-shaped with a more slender median projection.

Two setæ between median lobes, one laterad of median lobes, one between halves of second lobes, and one laterad of each pair of pore-projections.

Circumgenital pores 6 (13 and 15) (8 and 9); 6 (12 and 9) (7 and 7); 5 (14 and 9) (9 and 13); 7 (12 and 12) (8 and 11). The median pores may or may not be arranged in a transverse row.

The anus is situated cephalad of the median group.

The pygidium of the second exuvium is very similar to that of the adult. There is but 1 plate in each of the fourth and fifth places. There are no such points on the lateral margin of the abdominal segments as Green records for *L. beckii*.

On stems of *Vanda spathulata*, Peradeniya, Ceylon, September 1914.

This insect falls very near *L. beckii*, but has several points of difference which are indicated in the course of the description.

Leucaspis limoniæ, sp. nov.

Female scale elongate, narrow, dark-brown, consisting chiefly of the large second exuvium. There is occasionally to be seen a small mass of white wax cephalad of the first exuvium, and a narrow fringe at the posterior end. The dorsum of the second exuvium is sometimes lightly dusted with white wax. There is a transverse line of weakness in the first exuvium at a point about two-fifths of its length from the anterior end.

Male scale with exuvium dark-brown and a white secretion of much the same dimensions as the second exuvium in the female scale.

Adult female several times longer than broad, greenish, abdominal segments not laterally produced.

Antenna a comparatively large tubercle sometimes tapering towards apex and bearing three long straight hairs, the mesal and lateral ones of each group of equal length and longer than the middle one; situated cephalad of the mouth parts and about four times their width apart.

Anterior spiracles with about eight parastigmatic pores in a double row running cephalad from the spiracle; posterior spiracles without such pores. A few sharp, triangular processes situated round the cephalic margin. Mouth setæ long. Pygidium hyaline. Four conical lobes, tapering from base, much longer than broad pointed at apex; median lobes slightly larger than the second. A pair of long, narrow apically expanded pectinæ between the median lobes, a similar part between first and second lobes and two or three laterad of the second lobes. Thereafter two short, broad, pectinæ followed by a series of about eight truncate plates, longer than broad, each traversed by a gland duct. There is a longitudinal row of broad, cone-shaped processes running along body laterad of the mouth parts (these are probably marginal, their apparent position being due to a longitudinal folding of the body). Dorsal pores small and scattered. Anus near base of pygidium. Circumgenital pores in an arch, the caudo-lateral group being separated from the rest; there are from twenty-six to thirty-three in the median group and nine to thirteen in the caudo-lateral. Latero-cephalad of the main groups on each side are two groups of four (or two) each.

Second exuvium with two pairs of prominent lobes projecting far into the pygidium, with broad pectinæ and gland-pores between them. Along the sides of the body are situated numerous, broad, cone-shaped processes deeply concave at the apex and one or two more elongate, pectinæ-like processes.

First exuvium with a single pair of lobes; mesal of each a seta and a gland-pore and between the two gland-pores two short processes irregularly serrate at apex.

On leaves and petioles of *Limonia alata*, Peradeniya, Ceylon, August 1914.

This insect resembles *Leucaspis cockerelli*, (de Charm) but the lobes are of a different shape and are not notched, while the pectinæ are longer (extending well beyond the lobes) and the median and cephalo-lateral groups of circumgenital pores form a continuous series.

Aulacaspis uncinati, n. sp.

Scale of female not much longer than broad; secretion white; exuviæ reddish-brown, situated at one side.

Extreme apex of pygidium somewhat truncate. Three pairs of lobes. Median lobes hyaline, not united at the base, expanded caudally and slightly divergent towards the apex; margins slightly indented; a slight

band of chitin along their mesal sides. Second lobes distinct, duplex; mesal part expanded towards the apex and further projecting slightly farther caudad than the lateral part which is wider at the base than towards the apex. The third lobes are distinctly present on one side; duplex, mesal half large and conspicuous, lateral half shorter distal margin of both parts oblique. A prominent gland-pore projection laterad of the median lobes and a still more prominent one laterad of the second lobes and two pairs on the pygidial margin cephalad of the third lobes.

Plates 1, 1, 1, 1, 5-6. A dorsal seta laterad of the median lobes, one between the parts of the second and third lobes and one laterad of each pair of pore-projections.

Dorsal pores few, large, in three rows on each side of the pygidium, the inner row consisting of three and situated just laterad of the circumgenital pores.

Circumgenital pore 11 (24 and 25) (18 and 19); the median in a compact group, the cephalo-laterals in three or four longitudinal rows, the caudo-laterals in two or three rows.

Anus at level of interval between cephalo-and caudo-lateral groups of pores.

Antenna consists of a rounded tubercle bearing a single seta; antennæ situated as in *A. fagrea*, Gr. A group of anterior parastigmatic pores apparently present.

Underneath leaf-sheaths of *Penicum uncinatum*, Peradeniya, July 1914.

This insect resembles somewhat *A. fagrea*, Gr., but differs in the character of the median lobes, in the presence of a third lobe and in the number of circumgenital pores; (of *A. fagrea*, Gr.), Green says, "the lower groups in every case containing the greater number."